AF Micro-Nikkor 60mm f/2.8 D

Nikon

使用説明書
Instruction Manual
Bedienungsanleitung
Manuel d'utilisation
Manual de instrucciones
Manuale di istruzioni
使用說明書
使用说明书

付属アクセサリー
62mmスプリング式前キャップ 裏ぶたLF-1

Standard accessories
62mm snap-on front lens cap Rear lens cap LF-1

Serienmäßiges Zubehör
Aufsteckbarer Frontdeckel 62 mmø Hinterer Objektivdeckel LF-1

標準配件
62mm彈簧扣鏡頭前蓋 LF-1型鏡頭後蓋

Accessoires standards
Bouchon avant à emboîtement 62 mm Bouchon arrière LF-1

Accesorios estándar
Tapa frontal a presión de 62 mm Tapa trasera del objetivo LF-1

Accessori standard
Tappo anteriore da 62 mm dia. Tappo posteriore LF-1

标准配件
62mm弹簧扣镜头前盖 LF-1型镜头后盖

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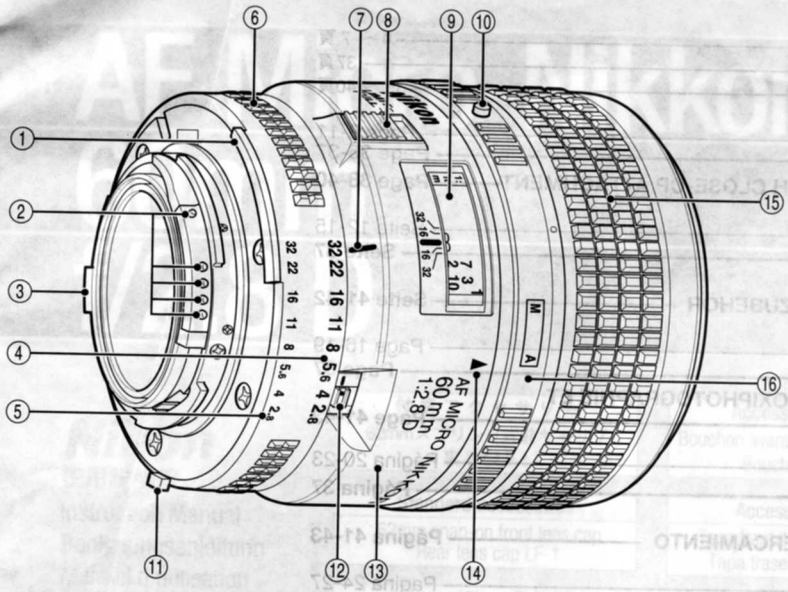
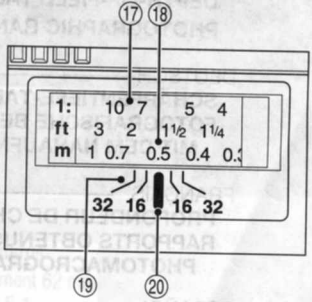
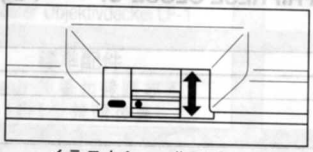
Nikon







イラストA
Illust. A
Abb. A
Illust. A

Ilust. A
Fig. A
圖A
図A

Nomenclature

① Meter coupling ridge
② CPU contacts
③ Aperture indexing post
④ Aperture scale
⑤ Aperture-direct-readout scale
⑥ Aperture ring
⑦ Aperture index/Mounting index*
⑧ Focusing limit switch
⑨ Distance scale window
⑩ A-M button
⑪ EE servo coupling post
⑫ Minimum aperture lock lever
⑬ Lens barrel
⑭ A-M index
⑮ Focus ring
⑯ A-M ring
⑰ Reproduction ratio scale
⑱ Distance scale
⑲ Depth-of-field indicators
⑳ Distance index

* You can also use a black screw on the lens bayonet as the mounting index.

Thank you for your kind patronage of Nikon.
Features of the AF Micro-Nikkor 60mm f/2.8 D lens are:

- Compact and lightweight micro lens
- Closest focus distance of 0.219m (8 3/4 in.)
- Distance information used for 3D Matrix Metering or the 3D Multi-Sensor Balanced Fill-Flash w be transmitted instantly from the lens to the camera body.

Before using your new lens, read the following carefully so you get the most out of your lens now and for years to come.

Important!

- Be careful not to soil or damage the CPU contacts.
- Do not attach the following accessories directly to the lens, as they might damage the lens' C contacts:
  Auto Extension Ring PK-1, Auto Extension Ring PK-11, K1 Ring, Auto Ring BR-4, Macro Adap Ring BR-2 or K2 Ring.
  (Use PK-11A instead of PK-11, BR-2A of BR-2.)
- Depending on the camera model, the lens cannot be mounted with the minimum aperture loc Before mounting the lens, make sure the minimum aperture is not locked (for details, see "M mum Aperture Lock").
- This lens cannot be used with AF finder DX-1 (for the Nikon F3AF).

Focusing

This lens can be used for both autofocus and manual focus.
To select autofocus, while pressing the A-M ring lock button, turn the A-M ring so that "A" is aligned with the A-M index. With the Nikon F-501/N2020*, setting to M may cause camera to malfunction.
To select manual, turn the A-M ring so "M" is aligned with the A-M index. With the Nikon F-5(N2020, also set the camera's focus mode selector as desired.

- When using a close-up attachment lens, autofocusing is not possible; use manual focusing.

* *The Nikon N2020 is sold exclusively in the U.S.A. and Canadian markets.*

Presetting focus range

In cases when you want to shoot within a specified distance range, you can reduce focusing time by setting the focus limit switch from FULL position to LIMIT. (There are two focusing limit zones; approx. 0.3m [1 ft.] to infinity for normal shooting, approx. 0.3m [1 ft.] to 0.219m [8 3/4 in.] for shooting at a close distance.)

Focusing at a predetermined reproduction ratio

The reproduction ratio is the relation between the size of the image recorded on film and the actual subject size. If, for example, the image on the focusing screen is one-fifth the actual subject size, the reproduction ratio is 1: 5.

To photograph at a predetermined reproduction ratio, use the following procedure:

1. Manually turn the focus ring until the desired reproduction scale number is aligned with the distance index.
2. Aim at the subject, then change your position, moving closer to or farther away from the subject, until the image in the viewfinder sharpens.

To obtain the appropriate reproduction ratio for each focal distance, see the table on page 37.

Recommended Focusing Screens

Various interchangeable focusing screens are available for Nikon cameras to suit any type of lens or picture-taking situation. Those which are recommended for use with your lens are listed.

Screen / Camera	A/L	B	C	D	E	G1	G2	G3	G4	H1	H2	H3	H4	J	K/P	M	R	T	U	F
F4 + DP-20		◎			◎		◎								◎	◎				
F4 + DA-20		◎			◎		◎								◎	◎				
F3	◎	◎			◎	○				○					◎	◎		△	◎	

◎= Excellent focusing

○= Acceptable focusing

Slight vignetting or moire phenomenon affects screen image, but film image shows no traces of this.

△=Acceptable focusing

The in-focus image in the central circular area may prove to be slightly out of focus on the film. Focus on the surrounding matte area.

Blank box means not applicable. Since type M screen can be used for both macrophotography at a 1:1 magnification ratio and for photomicrography, it has different applications than other screens.

For the K2, B2 and E2 focusing screens, refer to the columns on the K, B and E screens, respectively. For details, also refer to the specific camera's instruction manual.

Depth of Field

The depth of field indicator lines are engraved beside the distance index line. At close distances, however, so little is in focus that it may be more useful to check the depth of field table (on page 37). If your camera has a depth of field preview button or depth of field preview lever, you can check the depth of field in the viewfinder.

Minimum Aperture Lock (Illust. A)

For programmed auto or shutter-priority auto exposure shooting, use the minimum aperture lock lever to lock the lens aperture at f/32.

1. Set the lens to its minimum aperture (f/32).
2. Slide the lock lever in the direction of the aperture ring so the white dot on the lever aligns with the orange dot.

To release the lock, slide the lever in reverse direction.

Notes on Close-up Photography and Duplication Work

Camera shake

The AF Micro-Nikkor 60mm f/2.8 D provides such exceptionally high image magnification that even the slightest movement during shooting causes a blurred image. Be sure to mount the camera on a tripod and use a cable release or remote cord to release the shutter.

Close working distances

At the high reproduction ratios used in close-up shooting, the depth of field is very shallow. To ensure greater depth of field, stop down the lens, then carefully position the camera to ensure the most important surface of the subject is in the same zone of sharp focus.

Exposure measurement with close-up attachments

For a lens in normal position, see the following table. For a reverse-position lens, be sure to use stop-down measurement.

Camera	Accessory	Exposure measurement
F90X/N90s[3], F90-Series/ N90[3], F70-Series/N70[3], F50-Series/N50[3], F4 series, F-801/N8008[3], F-801s/ N8008s[3] (CPU•AI)	PK-11A, 12, 13/PN-11/ TC-201/TC-14A	Full-aperture
	PK-2, 3/PN-1/Bellows	Stop-down[1]
F3 series, FE, FM, EL2, Nikkormat FT3, F2 Photomic A, F2 Photomic AS (AI)	PK-11A, 12, 13/PN-11/ TC-201/TC-14A	Full-aperture
	PK-2, 3/PN-1/Bellows	Stop-down[1]
F-501/N2020, FE2, FA, FM2, FG,FG-20, EM, F-301/N2000[4] (AI)	PK-11A, 12, 13/PN-11/ TC-201/TC-14A	Full-aperture (or light intensity feedback)
	PK-2, 3/PN-1/Bellows	Stop-down[1]
Non-AI	PK-11A, 12, 13/PN-11/ TC-201/TC-14A/Bellows	Stop-down[1]
	PK-2, 3/PN-1	Stop-down[1]
		Full-aperture[2]

- The F-401s/N4004s[3] exposure metering system will not work with P 11A, PK-12, PK-13 or bellows.

1) For stop-down exposure metering, consult your camera's instruction manual.

2) Lens modification required. After mounting modified lens, manually perform maximum aperture indexing.

3) The Nikon N90s, N90, N70, N50, N8008, N8008s and N4004s are exclusively in the U.S.A.

4)The Nikon N2000 is sold exclusively in the U.S.A. and Canadian mar

Exposure Compensation

At a close distance (at reproduction ratios 1:10 or greater), the amount light reaching the film decreases as the lens-to-film distance increases When shooting without TTL exposure metering (i.e., when performing m TTL auto flash photography, or when using a separate exposure meter etc.), make exposure compensation while referring to the table below:

Reproduction ratio	Exposure factor	Amount of exposure compensation (approx.)
1:10	1.15	1/5 stop
1:8	1.19	1/4 stop
1:6	1.27	1/3 stop
1:4	1.42	1/2 stop
1:2	1.92	1 stop
1:1.8	2.04	1 stop
1:1.6	2.21	1 1/6 stops
1:1.4	2.43	1 1/3 stops
1:1.2	2.73	1 1/2 stops
1:1	3.20	1 2/3 stops

To compensate exposure without increasing aperture more than one full s use slower shutter speeds. For example, for a 1:1 reproduction ratio, use shutter speed one step slower, then open the lens by 2/3 stop. Or use shutter speed two steps slower, then stop the lens down by 1/3 stop.

Lens Care

- Clean lens surface with a blower brush. To remove dirt and smudges, use a soft, clean cotton cloth or lens tissue moistened with ethanol (alcohol) or lens cleaner. Wipe in a circular motion from center to outer edge, taking care not to leave traces and not to touch the other lens parts.
  If you use ether in cleaning the lens, a smudge sometimes appears on the surface of a multi-coated lens. If this happens, wipe it again with a cotton cloth moistened with alcohol.
- Never use thinner or benzine to clean the lens.
- To protect the lens surface from dirt or damage, the use of an NC filter is recommended at all times. The lens hood also helps to protect the lens.
- Keep the lens cap in place whenever the lens is not in use.
- If you will not use the lens for a long time, protect it from rust and mold by storing it in a cool, dry place. Also, do not store in direct sunlight, and keep it away from naphthalene or camphor.
- Be careful not to get the lens wet or drop it in water. Water on the lens may cause malfunction.
- Reinforced plastic is used on the exterior of the lens unit; to avoid damage, take extra care to never leave the lens in an excessively hot place.

Optional Accessories
62mm screw-in filters, Screw-in lens hood HN-22, UR-3 adapter (for SB-21), Hard lens case CL-32s, Flexible lens pouch No. 62, AI Teleconverter TC-201, AI Teleconverter TC-14A

Specifications

Focal length: 60mm
Maximum aperture: f/2.8
Lens construction: 8 elements in 7 groups
Picture angle: 39°40'
Distance scale: Graduated in meters and feet/inches from 0.219m (8 3/4 in.) to infinity (∞)
Distance information: Output into camera body
Reproduction ratio: 1:10 to 1:1 (life size)
Aperture scale: f/2.8 to f/32 on both standard and aperture-direct-readout scales
Minimum aperture lock: Provided
Diaphragm: Fully automatic
Exposure measurement: Via full-aperture method for AI cameras or cameras with CPU interface system; via stop-down method for other cameras
Mount: Nikon bayonet mount
Attachment size: 62mm (P=0.75mm)
Dimensions: Approx. 70mm dia. x 74.5mm extension from the camera's lens mounting flange; overall length is approx. 82.8mm
Weight: Approx. 455g

Depth of Field

(ft.)

Focused distance	Depth of field								Reproduction ratio
	f/2.8	f/4	f/5.6	f/8	f/11	f/16	f/22	f/32	
8 3/4 in.	8 11/16" — 8 3/4"	8 11/16" — 8 3/4"	8 11/16" — 8 3/4"	8 11/16" — 8 3/4"	8 11/16" — 8 3/4"	8 11/16" — 8 3/4"	8 11/16" — 8 3/4"	8 11/16" — 8 3/4"	1/1.2
9 in.	9" — 8 15/16"	9" — 8 15/16"	9" — 8 15/16"	9" — 8 15/16"	9" — 8 15/16"	9" — 8 15/16"	9" — 8 15/16"	9" — 8 15/16"	1/1.4
9 1/4 in.	9 1/4" — 9 3/16"	9 1/4" — 9 3/16"	9 1/4" — 9 3/16"	9 1/4" — 9 3/16"	9 1/4" — 9 3/16"	9 1/4" — 9 3/16"	9 1/4" — 9 3/16"	9 1/4" — 9 3/16"	1/1.5
9 1/2 in.	9 1/2" — 9 7/16"	9 1/2" — 9 7/16"	9 1/2" — 9 7/16"	9 1/2" — 9 7/16"	9 1/2" — 9 7/16"	9 1/2" — 9 7/16"	9 1/2" — 9 7/16"	9 1/2" — 9 7/16"	1/1.7
10 in.	10" — 9 15/16"	10" — 9 15/16"	10" — 9 15/16"	10" — 9 15/16"	10" — 9 15/16"	10" — 9 15/16"	10" — 9 15/16"	10 1/16" — 9 7/8"	1/2.0
1 ft.	1' — 11 15/16"	1' — 11 15/16"	1' — 11 15/16"	1' — 11 15/16"	1' 1/16" — 11 7/8"	1' 1/16" — 11 7/8"	1' 1/8" — 11 13/16"	1' 3/16" — 11 3/4"	1/2.9
1 1/4 ft.	1' 3" — 1' 2 15/16"	1' 3 1/16" — 1' 2 7/8"	1' 3 1/16" — 1' 2 7/8"	1' 3 1/8" — 1' 2 13/16"	1' 3 3/16" — 1' 2 3/4"	1' 3 5/16" — 1' 2 11/16"	1' 3 7/16" — 1' 2 9/16"	1' 3 5/8" — 1' 2 3/8"	1/4.3
1 1/2 ft.	1' 6 1/16" — 1' 5 7/8"	1' 6 1/8" — 1' 5 13/16"	1' 6 3/16" — 1' 5 3/4"	1' 6 1/4" — 1' 5 11/16"	1' 6 3/8" — 1' 5 9/16"	1' 6 9/16" — 1' 5 7/16"	1' 6 13/16" — 1' 5 1/4"	1' 7 3/16" — 1' 4 15/16"	1/5.6
2 ft.	2' 13/16" — 1' 11 3/4"	2' 5/16" — 1' 11 11/16"	2' 7/16" — 1' 11 9/16"	2' 5/8" — 1' 11 3/8"	2' 15/16" — 1' 11 1/8"	2' 1 5/16" — 1' 10 13/16"	2' 1 15/16" — 1' 10 3/8"	2' 2 7/8" — 1' 9 3/4"	1/8.2
3 ft.	3' 5/8" — 2' 11 3/8"	3' 7/8" — 2' 11 1/8"	3' 1 1/4" — 2' 10 13/16"	3' 1 13/16" — 2' 10 9/16"	3' 2 11/16" — 2' 9 11/16"	3' 3 15/16" — 2' 8 13/16"	3' 5 7/8" — 2' 7 11/16"	3' 9" — 2' 6 1/4"	1/13.3
7 ft.	7' 4 1/8" — 6' 7 15/16"	7' 6 1/16" — 6' 6 3/8"	7' 8 15/16" — 6' 4 3/8"	8' 1 3/8" — 6' 1 11/16"	8' 8 7/16" — 5' 10 1/4"	9' 8 9/16" — 5' 5 7/8"	11' 7 13/16" — 5' 1 1/16"	16' 4" — 4' 6 5/8"	1/33.6
∞	125' — ∞	88' — ∞	63' — ∞	44' — ∞	31' — ∞	22' — ∞	16' — ∞	11' — ∞	1/∞

Photographic Range with Close-up Attachment

(in.)

	Close-up attachment	Lens in normal position			Lens in reverse position*		
		Reproduction ratio	Subject field	Focused distance	Reproductio ratio	Subject field	Focused distancce
	Close-up attachment lens No. 5T	1/11 — 1.1	10.5 x 15.7 — 0.85 x 1.28	31.1 — 8.5	—	—	—
	Close-up attachment lens No. 6T	1/5.7 — 1.2	5.4 x 8.1 — 0.78 x 1.17	18.4 — 8.3	—	—	—
**	Close-up attachment lens No. 5T+6T	1/3.8 — 1.3	3.6 x 5.4 — 0.73 x 1.09	14.1 — 8.2	—	—	—
***	PK-series Rings	1/7.5 — 2.1	7.1 x 10.6 — 0.46 x 0.68	23.0 — 9.7	—	—	—
	PN-Ring	1/1.1 — 2.1	1.1 x 1.6 — 0.44 x 0.67	9.7 — 9.8	—	—	—
	Bellows PB-4 or PB-5	1/1.4 — 3.1	1.3 x 2.0 — 0.31 x 0.46	10.0 — 13.0	1.7 — 4.0	0.57 x 0.86 — 0.24 x 0.35	10.3 — 15.1
	Bellows PB-6	1/1.3 — 3.5	1.18 x 1.77 — 0.27 x 0.41	9.82 — 13.85	1.4 — 2.9	0.67 x 1.01 — 0.32 x 0.49	9.99 — 12.66
****	Slide Copying Adapter PS-4 or PS-5	1/1.4 — 1.8	1.3 x 2.0 — 0.54 x 0.81	10.0 — 10.5	1.7 — 3.8	0.57 x 0.86 — 0.25 x 0.37	10.3 — 14.7
	Slide Copying Adapter PS-6	1/1.3 — 1.8	1.18 x 1.77 — 0.54 x 0.81	9.82 — 10.47	1.4 — 1.8	0.67 x 1.01 — 0.54 x 0.81	9.99 — 10.47
	Macro Copy Stand PB-6E	1/1.3 — 1.8	1.18 x 1.77 — 0.52 x 0.78	9.82 — 10.59	1.4 — 1.8	0.67 x 1.01 — 0.52 x 0.78	9.99 — 10.59
	Extension Bellows PB-6E	1/1.3 — 7.3	1.18 x 1.77 — 0.13 x 0.19	9.82 — 22.55	1.4 — 6.7	0.67 x 1.01 — 0.14 x 0.21	9.99 — 21.26
*****	Reprocopy Outfit PF-2, 3, 4	1/12.0 — 1.0	1.14 x 1.70 — 0.94 x 1.42	33.6 — 8.6	—	—	—

* The optional Adapter Ring BR-5 (for PB-6, PB-6E, PB-6M or PS-6) or BR-2A (for others) is required to mount the lens in the reverse postion.

** Use of this lens with both the No. 5T and No. 6T close-up attachments is not recommended, as this combination will not produce good definition in close-up photography.

*** The first values are for the PK-11A ring used alone and the other ones for the PK-11A — PK-13, PK-11 — PK-13 or PK-1 — PK-3 rings used together. However, the PK-11 and PK-1 rings cannot be attached directly to the lens.

**** The Macro Ring Adapter BR-3 or BR-6 is used to connect the reverse mounted lens to the copying adapter.

***** The figures shown here represent the ranges obtained with the subject on the baseplate, using the lens without any close-up attachment.
1:1 reproduction ratio is obtained when the coarse focus handles are set to the minimum point and the fine focus knob is set approx. 45mm down.

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当社サービス機関にて新しい使用説明書をお求めください。(有償)

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